

REMARKS

Claims 1-5, 9-12, 15-19 and 22-24 remain in the application unchanged.

Claims 6-7, 13-14, 20-21 and 25-26 have been canceled. Claim 8 has been amended above. Reexamination and reconsideration of the claims are respectfully requested.

Summary of Office Action

In the Office Action dated November 7, 2007, the Examiner rejected claims 1, 8, 15-18 and 25 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al., U.S. Patent No. 6,507,049 (hereinafter “Yeager et al.”), in view of Haitz, U.S. Patent No. 3,780,357 (hereinafter “Haitz”). Claim 25 has been canceled above. Applicants respectfully traverse the rejection of the remaining claims for the reasons discussed below.

The Examiner also rejected claims 2-5 and 9-12 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz as applied to claims 1 and 8, and further in view of Ishinaga, U.S. Patent No. 6,355,946 (hereinafter “Ishinaga”). Applicants respectfully traverse this rejection for the reasons discussed below.

The Examiner further rejected claim 19 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz as applied to claim 8, and further in view of Abe, U.S. Patent No. 5,177,593 (hereinafter “Abe”). Applicants respectfully traverse this rejection for the reasons discussed below.

In addition, the Examiner rejected claims 22, 24 and 26 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz as applied to claims 1 and 8, and further in view of Song et al., U.S. Patent No. 6,707,069

(hereinafter “Song et al.”). Claim 26 has been canceled above. Applicants respectfully traverse the rejection of the remaining claims for the reasons discussed below.

Finally, the Examiner rejected claim 23 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz as applied to claim 8, and further in view of Shaddock, U.S. Patent Publication No. 2002/0163001 (hereinafter “Shaddock”). Applicants respectfully traverse this rejection for the reasons discussed below.

Legal Standard for Claim Rejection Under 35 U.S.C. §103

The test for obviousness under 35 U.S.C. §103 is whether the claimed invention would have been obvious to those skilled in the art in light of the knowledge made available by the reference or references. *In re Donovan*, 184 USPQ 414, 420, n. 3 (CCPA 1975). It requires consideration of the entirety of the disclosures of the references. *In re Rinehart*, 189 USPQ 143, 146 (CCPA 1976). All limitations of the claims must be considered. *In re Boe*, 184 USPQ 38, 40 (CCPA 1974). In making a determination as to obviousness, the references must be read without benefit of the Applicants' teachings. *In re Meng*, 181 USPQ 94, 97 (CCPA 1974). In addition, the propriety of a §103 rejection is to be determined by whether the reference teachings appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed substitution, combination, or other modifications. *In re Lintner*, 173 USPQ 560, 562 (CCPA 1972). A reference which **teaches away** from the Applicants' invention may not

properly be used in framing a 35 U.S.C. §103 rejection of the Applicants' claims.

See *United States v. Adams*, 148 USPQ 479, 484 (1966).

A basic mandate inherent in §103 is that a piecemeal reconstruction of prior art patents shall not be the basis for a holding of obviousness. It is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *In re Kamm*, 172 USPQ 298, 301-302 (CCPA 1972). Phrased somewhat differently, the fact that inventions of the references and of Applicants may be directed to concepts for solving the same problem does not serve as a basis for arbitrarily choosing elements from references in an attempt to fashion Applicants' claimed invention. *In re Donovan*, 184 USPQ 414, 420 (CCPA 1975).

Rejection of Claims 1, 8, 15-18 and 25

As noted above, the Examiner rejected claims 1, 8, 15-18 and 25 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz. Claim 25 has been canceled above. Applicants respectfully traverse the rejection of the remaining claims for at least the following reasons.

Yeager et al. is directed to an LED device (2, Fig. 2; 3, Fig. 3) having an LED chip (4) mounted on a carrier substrate (17) and enclosed within a clear encapsulate (11). The carrier substrate (17) contains a groove (19) that is coated with a reflective metal (21). The sidewalls of the groove (19) are shown in Fig. 2 to be tapered. In an embodiment shown in Fig. 3, the LED device (3) includes a package

(29) having tapered interior sidewalls (18) that are described as follows at Column 10, Lines 54-57:

“...The package 29 contains tapered interior sidewalls 18, which enclose the LED chips 4, and form a light spreading cavity 20, which ensures cross fluxing of LED light.”

Haitz is directed to a display apparatus including an electroluminescent semiconductor (12, Fig. 4A) resting on a base (18) and placed within a cavity (13) of a body (16). The body walls (21) inside the cavity (13) are coated with a diffusely reflective (preferably white) plastic. This reference notes that prior art devices utilized a specularly reflective, metallic coating (typically gold, silver, copper or aluminum) on the surrounding body walls rather than a diffusely reflective, white plastic coating as taught in the present invention. In this regard, Haitz states at Column 5, Lines 10-22:

“...In contrast, utilization of diffuse reflection and of a body having white walls (21) in accordance with the present invention has several advantages over the prior art. The prior art devices are required to be plated with reflective material over the entire interior surface of the cavity. The costs of the material and of the plating process substantially increase the cost of such prior art devices over the present invention.

The present invention overcomes this drawback by utilizing diffusely reflecting plastic (for example, of white color) as opposed to a specularly reflecting surface.”

The cavity (13) of the Haitz device is filled with transparent material (17) containing scattering centers (28). Such scattering centers (28) are specifically utilized in conjunction with the diffusely reflective, white plastic-coated walls (21) for the reasons discussed at Column 5, Lines 32-43 (emphasis added):

“In accordance with the present invention approximately 98.5 percent of the light which impinges upon the white surface 24 is reflected, a substantial advantage over the prior art. The light is bounced about the interior of the cavity 13 many times by the scattering centers 28 and by the

white walls 21. Thus, the light 30 emitted is uniform in appearance over the length of the cavity 13 from one end to the other. For a given number of reflections, the emitted light 30 is more intense than that which would be emitted from a specularly reflecting design because the reflectivity of white walls is greater than the reflectivity of metallized walls.”

Neither Yeager et al. nor Haitz, either singly or in combination, disclose or suggest the invention of Applicants' claim 1, with particular emphasis on the following items in bold type:

1. A light emitting diode package comprising:

a **one piece ceramic substrate** and cup for mounting a light emitting diode, said one piece ceramic substrate and cup formed from an opaque ceramic material and defining a **cavity with a vertical ceramic sidewall**, wherein said cavity is shaped to focus light in a predetermined direction; and
a **metallic coating on a portion of said ceramic substrate** for reflecting light in a predetermined direction.

On page 3 of the Office Action, the Examiner states that Yeager et al. teaches a light emitting diode packaging comprising a one piece ceramic substrate and cup for mounting a light emitting diode, as well as a metallic coating on a portion of the ceramic substrate. The Examiner also notes that Yeager et al. fails to teach the sidewalls of the cavity being vertical. It is further noted that Haitz teaches a light-emitting diode package with a ceramic substrate and a cavity with reflective, vertical sidewalls. The Examiner then states: “It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Yeager et al. with the teachings of Haitz because a cavity with vertical sidewalls would emit light ‘uniform in

appearance' and 'more intense' (Haitz; Column 5, Lines 37-43)." Applicants respectfully disagree this statement. Haitz not only fails to suggest such a combination, but actually **teaches away** from it. Specifically, as noted above, Haitz discusses at length the undesirability of prior art devices utilizing a specularly reflective, metallic coating on cavity walls surrounding a light source, and states that a white plastic, diffusely reflective coating should instead be used. The portion of this reference to which the Examiner refers in the Office Action (Haitz; Column 5, lines 37-43) states that light reflected from sidewalls that have a "specularly reflecting design" is "**more intense because the reflectivity of white walls is greater than the reflectivity of metallized walls.**" This statement **teaches directly away** from the combination of this reference with the Yeager et al. device as suggested by the Examiner, since such a combination would necessarily have metallized walls as taught by Applicants' invention. As noted above, a reference which **teaches away** from the Applicants' invention may not properly be used in framing a 35 U.S.C. §103 rejection of the Applicants' claims. See *United States v. Adams*, 148 USPQ 479, 484 (1966).

Yeager et al. also **teaches away** from making the combination suggested by the Examiner. Specifically, as noted above, this reference discloses a package having tapered interior sidewalls enclosing LED chips that "form a light spreading cavity 20, which ensures cross fluxing of LED light" [Yeager et al.; Column 10, Lines 56-57]. Thus, this reference suggests that such cross-fluxing of LED light would not be accomplished without interior sidewalls that are **tapered** as shown and described.

Since **both cited references clearly teach away** from making a combination that could possibly produce Applicants' invention as claimed in claim 1, Applicants believe that this claim is allowable over these references. Furthermore, as noted above, a basic mandate inherent in §103 is that a piecemeal reconstruction of prior art patents shall not be the basis for a holding of obviousness. It is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *In re Kamm*, 172 USPQ 298, 301-302 (CCPA 1972). In attempting to create the combination of elements recited by Applicants in claim 1, the Examiner simply tried to pick and choose from each reference only so much of it to come up with the combination, while completely ignoring the fact that each reference was **teaching away** from such a combination. Thus, the combination of Yeager et al. and Haitz in support of a §103 rejection of Applicant's claim 1 is improper, and this claim is believed to be allowable over the cited references.

For the same reasons as those discussed above relative to claim 1, Applicants also believe that claim 8 is allowable over the cited references. Claim 8 has been amended above to specifically state that the ceramic cavity is coated with a **metallic**, light reflective material so that claim 8 is consistent with claim 1. As noted above relative to claim 1, Haitz **teaches away** from the combination of method steps recited in Applicants' claim 8 by discussing at length the undesirability of prior art devices utilizing a specularly reflective, metallic coating on cavity walls surrounding a light source. Yeager et al. also teaches away from such a combination by specifying that the interior sidewalls of the package be tapered.

Since **both cited references clearly teach away** from making a combination that could possibly produce Applicants' invention as claimed in claim 8, such a combination in support of a §103 rejection of Applicant's claim 8 is improper, and this claim is believed to be allowable over the cited references.

Claims 15-18 are believed to be allowable as depending on an allowable base claim (claim 8), and further in view of the novel and nonobvious combinations of elements disclosed therein.

Rejection of Claims 2-5 and 9-12

As noted above, the Examiner rejected claims 2-5 and 9-12 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz as applied to claims 1 and 8, and further in view of Ishinaga. Applicants respectfully traverse this rejection for at least the following reasons.

These claims are believed to be allowable as depending on an allowable base claim (either claim 1 or 8), and further in view of the novel and nonobvious combinations of elements disclosed therein. With or without the Ishinaga reference, the combination of Yeager et al. and Haitz in support of a §103 rejection of these claims is improper. For at least these reasons, Applicants believe that claims 2-5 and 9-12 are allowable over the cited references.

Rejection of Claim 19

As noted above, the Examiner rejected claim 19 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz as applied to claim 8, and

further in view of Abe. Applicants respectfully traverse this rejection for at least the following reasons.

This claim is believed to be allowable as depending on an allowable base claim (claim 8), and further in view of the novel and nonobvious combination of elements disclosed therein. With or without the Abe reference, the combination of Yeager et al. and Haitz in support of a §103 rejection of this claim is improper. For at least these reasons, Applicants believe that claim 19 is allowable over the cited references.

Rejection of Claims 22, 24 and 26

As noted above, the Examiner rejected claims 22, 24 and 26 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz as applied to claims 1 and 8, and further in view of Song et al. Claim 26 has been canceled above. Applicants respectfully traverse the rejection of claims 22 and 24 for at least the following reasons.

These claims are believed to be allowable as depending on an allowable base claim (claim 1 or 8), and further in view of the novel and nonobvious combinations of elements disclosed therein. With or without the Song et al. reference, the combination of Yeager et al. and Haitz in support of a §103 rejection of these claims is improper. For at least these reasons, Applicants believe that claims 22 and 24 are allowable over the cited references.

Rejection of Claim 23

As noted above, the Examiner rejected claim 23 under 35 U.S.C. §103(a) as being unpatentable over Yeager et al. in view of Haitz as applied to claim 8, and further in view of Shaddock. Applicants respectfully traverse this rejection for at least the following reasons.

This claim is believed to be allowable as depending on an allowable base claim (claim 8), and further in view of the novel and nonobvious combination of elements disclosed therein. With our without the Shaddock reference, the combination of Yeager et al. and Haitz in support of a §103 rejection of this claim is improper. For at least these reasons, Applicants believe that claim 23 is allowable over the cited references.

Conclusion

Applicants believe that all of the claims pending in the application (claims 1-5, 8-12, 15-19 and 22-24) are now allowable. Therefore, Applicants respectfully request that the Examiner reconsider the application and grant an early allowance. Should the Examiner have any questions, Applicants' attorney may be contacted at the telephone number listed below.

Respectfully submitted,

KLAAS, LAW, O'MEARA & MALKIN, P.C.



February 7, 2008

Nellie C. Kaufman, Attorney for Applicants
Registration No. 34,689
1999 Broadway, Suite 2225
Denver, Colorado 80202
(303) 298-9888